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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,718	03/21/2006	Yoshiyasu Fujiwara	0388-060453	4614

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EXAMINER	
TEIXEIRA MOFFAT, JONATHAN CHARLES	
ART UNIT	PAPER NUMBER
2863	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/572,718	FUJIWARA, YOSHIYASU	
	Examiner	Art Unit	
	JONATHAN TEIXEIRA MOFFAT	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 May 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

As a result of the decision by the Pre-Appeal Brief Review Panel on 5/18/2010, this application is reopened for prosecution.

Further, it is noted that this application is now being addressed by examiner Jonathan C. Teixeira Moffat.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Monitoring Steam Trap Loss" or the like.

Claim Objections

Claims 1-9 are objected to because of the following informalities:

Although the preambles of these claims discuss "diagnosing", no step of actually drawing a conclusion or making a diagnosis appears.

Further, it appears to the examiner that the claims could be rewritten to simplify issues for examination and to facilitate clarity in language. Specifically, apart from measurement steps, all remaining language merely describes equations and further are redundant as each ratio is described several times. It may be simpler to claim the equations themselves along with definitions of each variable.

In claim 1, it is assumed that the word "or" on line 6 is a typographical error, as inclusion there would imply that one embodiment is for no calculations to be performed at all.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1-6 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Specifically, applicant's invention appears to be directed to a method which is not tied to a specific machine or apparatus. Instead, it appears that this method may be performed on either a general-purpose computing device or even as a mental process. Further, it has been noted that mere field-of-use or insignificant extra-solution activity, though tied to a machine, is not sufficient to tie the method to a specific machine or apparatus. See MPEP 2106.IV.B and *In re Bilski*, 545 F.3d 943, 88 USPQ2d 1385 (Fed Cir. 2008) and *In re Alappat*, US Court of Appeals Federal Circuit No. 92-1381.

Specifically, although collection of steam data may be performed by a machine, determination of ratios and other simple mathematical relationships are reasonably performed by a human either on paper or as a mental process.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (US pat pub 20020052716).

With respect to claim 1, Fujiwara discloses a method comprising:

1) Determining a total receiving steam amount which is a total amount of steam supplied to an evaluation target steam piping and a total necessary steam amount which is a total amount of steam required by a steam-using device in the evaluation target steam piping determining a difference between said total receiving steam amount and said total necessary steam amount as a total unknown steam amount which is a total steam loss amount in the evaluation target steam piping (paragraphs 0013-0014). *Steam loss is determined.*

Although Fujiwara does not use this language and does not specify that the 'total receiving and necessary' amounts are measured, one of ordinary skill in the art would find this to be obvious. The loss discussed by Fujiwara would be understood by those of ordinary skill in the art to be, inherently, the difference between the steam sent to the trap and the steam that actually reaches the trap, which is why it is considered a 'leak'. Even if Fujiwara measures only the leak value, the amount of steam intended for or sent to the trap (the 'necessary' amount) would be known and the amount of steam actually reaching the trap would be the difference between that and the leak amount. This amounts to simple mathematical manipulation well

within ordinary skill in the art. A simple analogy would be **volume of water in bucket = volume of bucket - volume of water leaked out of bucket**. Given any two values, the other can always be solved for.

2) Determining a total amount of steam loss which can be solved by a predetermined system improvement in the evaluation target steam piping as a total improvable steam loss amount (paragraph 0015).

Again, although Fujiwara does not use this language, the mathematical relationship is disclosed. Fujiwara discloses a current leak amount and a leak amount which will exist once repairs/replacements are done. The difference between these is, logically, the 'solvable' leak amount as one of ordinary skill in the art would find obvious. To simplify: **leak rate now - leak rate later = amount of leak that has been solved.** Again, this is simple mathematical manipulation well within the realm of one of ordinary skill in the art.

With respect to claim 1, Fujiwara fails to specify:

3) Based on said grasped determined total amounts of steam loss:

A) Obtaining a ratio of said total improvable steam loss amount relative to the total unknown steam amount as an improvable unknown steam ratio **or**

B) Obtaining a ratio of the total unknown steam amount relative to the total receiving steam amount and a ratio of a total basis unknown steam amount as an unknown steam ratio and an improved unknown steam ratio, respectively **or**

C) Obtaining a ratio of the total unknown steam amount relative to the total receiving steam amount and a ratio of a total basis unknown steam amount relative to the

total receiving steam amount as an unknown steam ratio and an apparent improved unknown steam ratio respectively.

However, one of ordinary skill in the art would find such calculations to be within the realm of basic mathematical manipulation which require no more than routine skill in the art (Algebra) and therefore obvious. In general, if **X=Y-Z** is known then stating **Y=X+Z** is obvious. Additionally, it would be obvious to state that **Z/X** is the fractional difference between **X** and **Y**. Specific to claimed ratio A above, this is merely the fraction or percentage of leak that can be repaired. Fujiwara even discloses fractional relationships between leaks in paragraph 0095, further proving such math to be known. In option B, the first ratio is merely the fraction or percentage of loss, the second is again a fraction or percentage of repairable leak. In option C, the first ratio is merely a fraction of input steam that is leaked, the second is a fraction of expected or ideal steam that is leaked. Each of these ratios is merely a way to re-arrange the data collected by Fujiwara, and the inclusion of 'or' statements implies that though all are obvious, only one need be contemplated to meet the language of the claims. These equations have no special or unique properties and thus yield only predictable results when employed, which is to represent the data of Fujiwara as ratios of one another.

With respect to claim 2, Fujiwara discloses:

1) Performing a trap operation diagnosis on a plurality of evaluation target steam traps mounted in the evaluation target steam piping (Fig 4).

2) Based on a result of the trap operation diagnosis, calculating a total trap-passed steam loss amount obtained by aggregating trap-passed steam loss amounts for the total number of evaluation target steam traps (Abstract). *This process yields a total leak amount.*

With respect to claim 2, Fujiwara fails to specify:

3) Obtaining, using said total trap-passed steam loss amount as the total improvable steam loss amount to obtain the improvable unknown steam ratio, **or** the unknown steam ratio and the improved unknown steam ration **or** the unknown steam ratio and the apparent improved unknown steam ratio.

However, one of ordinary skill in the art would find such calculations to be within the realm of basic mathematical manipulation which require no more than routine skill in the art (Algebra) and therefore obvious. Again, these ratios are percentages or fractions of leakage or improvable leakage. Each of these ratios is merely a way to re-arrange the data collected by Fujiwara, and the inclusion of 'or' statements implies that though all are obvious, only one need be contemplated to meet the language of the claims. These equations have no special or unique properties and thus yield only predictable results when employed, which is to represent the data of Fujiwara as ratios of one another.

With respect to claim 3, Fujiwara discloses:

1) Performing a trap operation diagnosis on a plurality of evaluation target steam traps mounted in the evaluation target steam piping and a steam leakage diagnosis for diagnosing steam leakage from respective piping portions of the evaluation target steam piping (Fig 4).

2) Based on a result of the trap operation diagnosis, calculating a total trap-passed steam loss amount obtained by aggregating trap-passed steam loss amounts for the total number of evaluation target steam traps (Abstract). *This process yields a total leak amount.*

3) Based on a result of the steam leakage diagnosis, calculating a total steam leakage loss amount obtained by aggregating steam leakage loss amounts from the respective piping portions (paragraphs 0013-0014).

With respect to claim 3, Fujiwara fails to specify:

4) Using a sum total steam loss amount, which is a sum of said total trap-passed steam loss amount and said total steam leakage loss amount as the total improvable steam loss amount to obtain the improvable unknown steam loss ratio **or** the unknown steam ratio and the improved unknown steam ratio, **or** the unknown steam ratio and the apparent improved unknown steam ratio.

However, one of ordinary skill in the art would find such calculations to be within the realm of basic mathematical manipulation which require no more than routine skill in the art (Algebra) and therefore obvious. The difference between the current leak and the future leak (after repair) from paragraph 0015 of Fujiwara, is the improvement amount. Again, these ratios are percentages or fractions of leakage or improvable leakage. Each of these ratios is merely a way to re-arrange the data collected by Fujiwara, and the inclusion of 'or' statements implies that though all are obvious, only one need be contemplated to meet the language of the claims. These equations have no special or unique properties and thus yield only predictable results when employed, which is to represent the data of Fujiwara as ratios of one another.

With respect to claims 4 and 7, Fujiwara discloses a method and apparatus for:

1) Receiving, by said inputting means, inputs of result of a trap operation diagnosis performed by a trap diagnotor for diagnosing operational conditions of a plurality of evaluation target steam traps mounted in an evaluation target steam piping and inputs of a total receiving

steam amount and a total necessary steam amount of the evaluation target steam piping or an input of a total unknown steam amount which is a difference between the total receiving steam amount and the total necessary steam amount and is a total steam loss amount in the evaluation target steam piping (Fig 4 and paragraphs 0013-0014).

Although Fujiwara does not use this language and does not specify that the 'total receiving and necessary' amounts are measured, one of ordinary skill in the art would find this to be obvious. The loss discussed by Fujiwara would be understood by those of ordinary skill in the art to be, inherently, the difference between the steam sent to the trap and the steam that actually reaches the trap, which is why it is considered a 'leak'. Even if Fujiwara measures only the leak value, the amount of steam intended for or sent to the trap (the 'necessary' amount) would be known and the amount of steam actually reaching the trap would be the difference between that and the leak amount. This amounts to simple mathematical manipulation well within ordinary skill in the art. A simple analogy would be **volume of water in bucket = volume of bucket - volume of water leaked out of bucket**. Given any two values, the other can always be solved for.

2) Calculating, by said calculating means and based on the result of the trap operation diagnosis inputted to the inputting means, a total trap-passed steam loss amount obtained by aggregating trap-passed steam loss amounts for all the evaluation target steam traps (Abstract). *The leakage is a total leakage.*

With respect to claims 4 and 7, Fujiwara fails to specify:

3) Based on the total receiving steam amount and the total necessary steam amount **or** the total unknown steam amount inputted to the inputting means:

A) Calculating a ratio of the total trap-passed steam loss amount relative to the total unknown steam amount as an improvable unknown steam ratio **or**

B) Calculating a ratio of the total unknown steam amount relative to the total receiving steam amount and a ratio of a total basis unknown steam amount relative to a value obtained by subtracting the total trap-passed steam loss amount from the total receiving steam amount as an unknown steam ratio and an improved unknown steam ratio, respectively **or**

C) Calculating a ratio of the total unknown steam amount relative to the total receiving steam amount and a ratio of a total basis unknown steam amount relative to the total receiving steam amount as an unknown steam ratio and an apparent improved unknown steam ratio respectively.

However, one of ordinary skill in the art would find such calculations to be within the realm of basic mathematical manipulation which require no more than routine skill in the art (Algebra) and therefore obvious. In general, if **X=Y-Z** is known then stating **Y=X+Z** is obvious. Additionally, it would be obvious to state that **Z/X** is the fractional difference between **X** and **Y**. Specific to claimed ratio A above, this is merely the fraction or percentage of leak that can be repaired. Fujiwara even discloses fractional relationships between leaks in paragraph 0095, further proving such math to be known. In option B, the first ratio is merely the fraction or percentage of loss, the second is again a fraction or percentage of repairable leak. In option C, the first ratio is merely a fraction of input steam that is leaked, the second is a fraction of expected or ideal steam that is leaked. Each of these ratios is merely a way to re-arrange the data collected by Fujiwara, and the inclusion of 'or' statements implies that though all are obvious,

only one need be contemplated to meet the language of the claims. These equations have no special or unique properties and thus yield only predictable results when employed, which is to represent the data of Fujiwara as ratios of one another.

With respect to claims 5 and 8, Fujiwara discloses a method and apparatus for:

1) Receiving, by said inputting means, inputs of result of a trap operation diagnosis performed by a trap diagnotor for diagnosing operational conditions of a plurality of evaluation target steam traps mounted in an evaluation target steam piping and inputs of a total receiving steam amount and a total necessary steam amount of the evaluation target steam piping or an input of a total unknown steam amount which is a difference between the total receiving steam amount and the total necessary steam amount and is a total steam loss amount in the evaluation target steam piping (Fig 4 and paragraphs 0013-0014).

Although Fujiwara does not use this language and does not specify that the 'total receiving and necessary' amounts are measured, one of ordinary skill in the art would find this to be obvious. The loss discussed by Fujiwara would be understood by those of ordinary skill in the art to be, inherently, the difference between the steam sent to the trap and the steam that actually reaches the trap, which is why it is considered a 'leak'. Even if Fujiwara measures only the leak value, the amount of steam intended for or sent to the trap (the 'necessary' amount) would be known and the amount of steam actually reaching the trap would be the difference between that and the leak amount. This amounts to simple mathematical manipulation well within ordinary skill in the art. A simple analogy would be **volume of water in bucket = volume of bucket - volume of water leaked out of bucket**. Given any two values, the other can always be solved for.

2) Calculating, by said calculating means and based on the result of the trap operation diagnosis inputted to the inputting means, a total trap-passed steam loss amount obtained by aggregating trap-passed steam loss amounts for all the evaluation target steam traps (Abstract). *The leakage is a total leakage.*

3) Based on a result of the steam leakage diagnosis, calculating a total steam leakage loss amount obtained by aggregating steam leakage loss amounts from the respective piping portions (paragraphs 0013-0014).

With respect to claims 5 and 8, Fujiwara fails to specify:

4) Based on the total receiving steam amount and the total necessary steam amount **or** the total unknown steam amount inputted to the inputting means:

A) Calculating a ratio of the total trap-passed steam loss amount relative to the total unknown steam amount as an improvable unknown steam ratio **or**

B) Calculating a ratio of the total unknown steam amount relative to the total receiving steam amount and a ratio of a total basis unknown steam amount relative to a value obtained by subtracting the total trap-passed steam loss amount from the total receiving steam amount as an unknown steam ratio and an improved unknown steam ratio, respectively **or**

C) Calculating a ratio of the total unknown steam amount relative to the total receiving steam amount and a ratio of a total basis unknown steam amount relative to the total receiving steam amount as an unknown steam ratio and an apparent improved unknown steam ratio respectively.

However, one of ordinary skill in the art would find such calculations to be within the realm of basic mathematical manipulation which require no more than routine skill in the art (Algebra) and therefore obvious. In general, if **X=Y-Z** is known then stating **Y=X+Z** is obvious. Additionally, it would be obvious to state that **Z/X** is the fractional difference between **X** and **Y**. Specific to claimed ratio A above, this is merely the fraction or percentage of leak that can be repaired. Fujiwara even discloses fractional relationships between leaks in paragraph 0095, further proving such math to be known. In option B, the first ratio is merely the fraction or percentage of loss, the second is again a fraction or percentage of repairable leak. In option C, the first ratio is merely a fraction of input steam that is leaked, the second is a fraction of expected or ideal steam that is leaked. Each of these ratios is merely a way to re-arrange the data collected by Fujiwara, and the inclusion of 'or' statements implies that though all are obvious, only one need be contemplated to meet the language of the claims. These equations have no special or unique properties and thus yield only predictable results when employed, which is to represent the data of Fujiwara as ratios of one another.

With respect to claims 6 and 9, Fujiwara discloses performing a data generating step performed based on the calculation results of the calculating means, by a data generating means included in the aggregating system for system diagnosis (Fig 4) for generating evaluation data having contents **indicative of** at least the total unknown steam amount and the improvable unknown steam ratio **or** evaluation data having contents **indicative of** at least the total trap-passed steam loss amount, the sum total steam loss amount and the improvable unknown steam ratio **or** evaluation data having contents **indicative of** at least the unknown steam ratio and the improved unknown steam ratio **or** evaluation data having contents **indicative of** at least the

unknown steam ratio and the apparent improved unknown steam ratio (Fig 4 and paragraphs 0013-0016). *The data collected on leakage is indicative of all of these values as it is a mathematically related parameter.*

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN TEIXEIRA MOFFAT whose telephone number is (571)272-2255. The examiner can normally be reached on Mon-Fri, from 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jonathan C. Teixeira Moffat/
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9/7/2010